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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,694	05/16/2001	Yong-In Park	8733.428.00	9209

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EXAMINER

MALDONADO, JULIO J

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/855,694

Applicant(s)

PARK ET AL.

Examiner

Julio J. Maldonado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

GROUND OF THE REJECTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicants' admitted prior art in the instant application in view of Yamazaki et al. (U.S. 6,261,881).

In reference to claims 1, 5, 15 and 18, the prior art (Figs.1-4) in a method to form thin film transistors teaches forming a gate electrode (30) on a first substrate (1); forming an organic layer (33) over the first substrate (1) having the gate electrode (30); curing the organic layer (33) in a first chamber; transferring the first substrate (1) having the organic layer (33) from the first chamber to a second chamber; forming an active layer (34) on the organic layer (33) in the second chamber; forming source (38) and drain (40) electrodes on the active layer (34); forming a pixel electrode (14) connected to the drain electrode (40); and forming a liquid crystal layer (10) between the first substrate (1) and a second substrate (4) (page 2, line 11 – page 7, line 22).

The prior art fails to teach transferring the first substrate having the organic layer from a first chamber to a second chamber without exposing the first substrate having the organic layer to oxygen atmosphere during transfer. However, Yamazaki et al. (Figs.5, 13 and 14) in a related method to form thin film transistors teach transferring a

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first substrate (500) having an organic layer (503) from a first chamber (44) to a second chamber (45) without exposing the first substrate (500) having the organic layer (503) to oxygen atmosphere during transfer (column 9, line 23 – column 10, line 61 and column 15, line 4 – column 16, line 34). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to deposit the organic layer over the first substrate and transfer it from one chamber to another without exposing the organic layer to the atmosphere as taught by Yamazaki et al. in the TFT process of the prior art, since this would improve the interface between an active layer and an insulating film (column 2, lines 40-49).

In reference to claims 2-4, 16, 17, 19 and 20, the prior art teaches the organic insulating layer (33) is selected from a group consisting of benzocyclobutene (BCB); the heating is performed to cure the organic layer under an inert gas condition, said inert gas includes nitrogen gas (N_2); and the active layer (34) includes an amorphous silicon layer and a doped amorphous silicon layer (page 2, line 11 – page 7, line 22).

Response to Arguments

3. Applicant's arguments filed 09/25/2002 have been fully considered but they are not persuasive.

Applicants' argue that Yamazaki et al. does not teach or suggest the claimed invention as a whole. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642

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F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Also, applicants' argue, "...Yamazaki et al. may teach forming an organic film using specific process and specific apparatuses, but fail to teach or suggest explicitly or implicitly a method of fabricating a thin film transistor including heating and curing the organic insulating layer under a vacuum conditions, and forming a silicon layer on the organic insulating layer without breaking the vacuum..." (page 5, lines 1 - 6). However, Yamazaki et al. was no relied on upon that purpose.

Furthermore, applicants cite Wiseman, 596, F.2d 1019, 1022, 201 USPQ 658, 661 (CCPA 1979) (...[A] different situation exists where the solution is obvious from prior art which contains the same solution for a similar problem.). In response to this argument, Yamazaki et al. (column 3, lines 1 – 9) teach a process to form a thin film transistor (TFT) structure on a closed system (i.e. without exposure to air). Also, Yamazaki et al. teach performing the process under vacuum conditions, for the intended purpose of preventing contamination by oxygen in air (column 9, 39 – 42 and column 10, lines 43 – 49) and improving the interface between active layers (column 2, lines 40 – 49). From this argument, it is clear that the purpose of the invention is to form a TFT structure in which the contamination of oxygen is prevented. Furthermore, page 8, lines 5 – 7 of the submitted specification cite, "...an object of the present invention is to provide a method of fabricating a thin film transistor including an organic gate-insulating layer having an improved interface property...". It is clear that Yamazaki improves the

interface of the organic dielectric layer (Fig.5, '503') by performing the process without breaking the vacuum.

In conclusion, Yamazaki et al. teach a similar problem (i.e. improving organic interface) and provide the same solution (i.e. performing the process without breaking the vacuum).

Finally, applicant's argue, "...the Examiner has not pointed out a particular finding as to the specific understanding or principle within the knowledge of a skilled artisan..." (page 5, lines 16 – 20). However, motivation was provided on the office action mailed on 06/19/2002.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823


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Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via julio.maldonado@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

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